

CLAIM AMENDMENTS

1. (currently amended) A method of magnetron sputtering, the method comprising:
forming a first closed plasma loop;
forming an open plasma loop ~~within the first closed plasma loop~~ by forming a separatrix such that a portion of the open plasma loop enclosed by the separatrix is cut-off by a target of a magnetron apparatus, the separatrix comprising a surface having a null region through which ions may pass through; and
sputtering a the target with ions from the open plasma loop and the closed plasma loop.
2. (original) The method of claim 1 further comprising:
forming a second closed plasma loop within the first closed plasma loop.
3. (original) The method of claim 1 wherein the open plasma loop flows in the same direction as the first closed plasma loop.
4. (original) The method of claim 1 wherein the target comprises a planar target.
5. (original) The method of claim 1 wherein the target comprises a hollow target
6. (canceled)
7. (canceled)
8. (original) The method of claim 1 further comprising:
generating a rotating magnetic field to rotate the open plasma loop.
- 9-21. (canceled)
22. (currently amended) A method of magnetron sputtering, the method comprising:
forming a first separatrix to confine a first plasma;
confining the first separatrix within a second separatrix, the first separatrix and the second separatrix each comprising a surface having a null region through which ions may escape through; and
depositing a thin film on a substrate with ions escaping through a the null region of the second separatrix.
23. (currently amended) The method of claim 22 further comprising:
confining the second separatrix within a third separatrix, the third separatrix comprising a null region through which ions may escape through; and
wherein the ions escaping through the null region of the second separatrix pass through a the null region of the third separatrix to deposit onto the substrate.

24. (original) The method of claim 22 wherein the ions escaping through the null region of the second separatrix are sputtered off a hollow target.
25. (original) The method of claim 22 wherein the ions escaping through the null region of the second separatrix are sputtered off a planar target.
- 26-32. (canceled)
33. (new) A method of magnetron sputtering, the method comprising:
forming a first closed plasma loop;
forming an open plasma loop;
sputtering a target with ions from the open plasma loop and the closed plasma loop;
wherein the open plasma loop is formed by physically blocking a return path of a separatrix comprising a surface having a null field region through which ions may pass through.
34. (new) The method of claim 33 further comprising:
forming a second closed plasma loop within the first closed plasma loop.
35. (new) The method of claim 33 wherein the open plasma loop flows in the same direction as the first closed plasma loop.
36. (new) The method of claim 33 wherein the target comprises a planar target.
37. (new) The method of claim 33 wherein the target comprises a hollow target.
38. (new) The method of claim 33 further comprising:
generating a rotating magnetic field to rotate the open plasma loop.